Site Server
Installation and Configuration Guide
(Dose Index Registry)

TRIAD Version 4.3

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1 Introduction

1.1 Purpose

The purpose of this document is to explain steps required for installation and configuration of TRIAD Site Server for the Dose Index Registry (DIR).

1.2 Hardware and Software Requirements

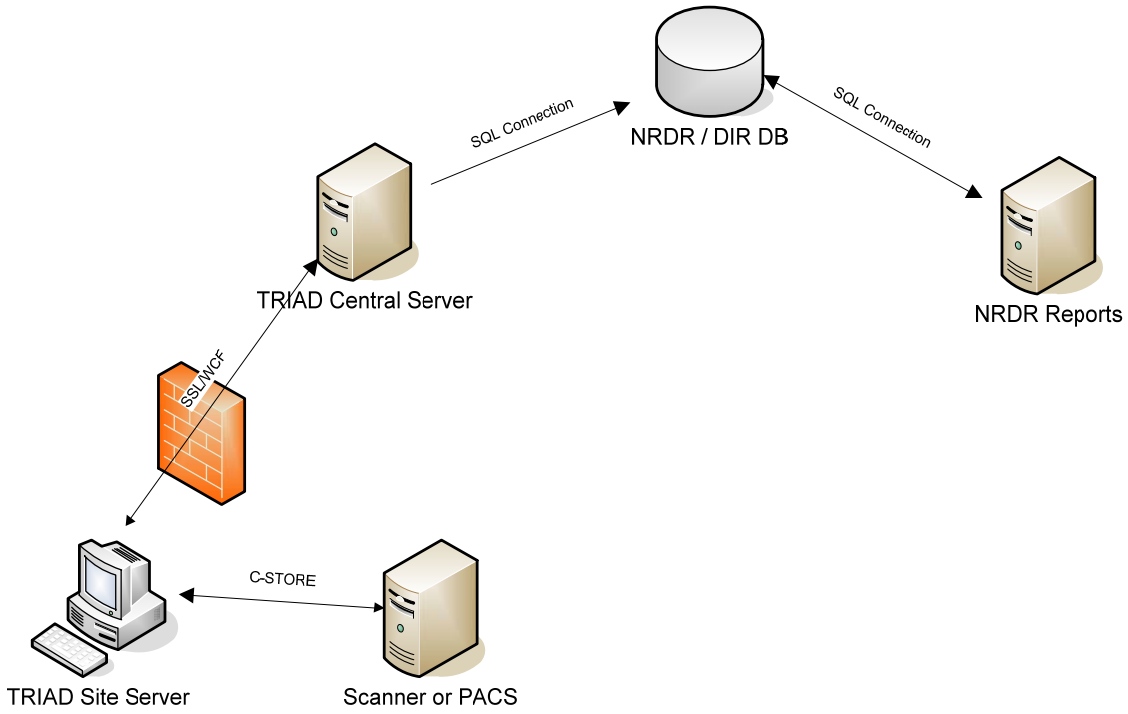
#	Items	Remarks
	Operating System	Windows 7 – 32/64 bit, Windows Server 2008 SP2/R2 – 32/64 bit
1	*CPU*	Intel Core2 Duo or above
2	*Memory*	Minimum 4 GB
3	*Hard Disk*	The hard disc size depends on the size of images received and stored in TRIAD Site Server. 50 GB minimum and 200 GB recommended.
	Software	**.Net framework 4.0** (Full version --Client profile and Extend) (After completion, you will need to restart) http://www.microsoft.com/en-us/download/details.aspx?id=30653
4	*Port 104 or other available port*	TRIAD Site Server uses this port to listen to remote modalities or PACS to receive DICOM files. Users can change this port # as needed.
5	*Port 443*	This port is used for communication between TRIAD central server and Site Server. It must be accessible from the internet.
5	*User Permissions on the Computer*	An account with administrator rights to the computer will be needed for TRIAD Site Server installation. The account running TRIAD Site Server service should have sufficient privilege for executing service and be able to connect to central server through the internet (port 443)
6	*Connectivity*	PACS and scanners should have necessary connectivity permissions in place to allow the DICOM transfer of images to the computer running the SS service. The computer running the SS service should be allowed to transfer image files from your site via the Internet. This ability is needed to submit files from the TRIAD Site Server to the Central Server.
7	*Network Requirements*	The speed between TRIAD Site Server and the internet should be at least 256 kbps but we strongly suggest at least 1 Mbps
8	*National Radiology Data Registry (NRDR)user account*	A valid user account in NRDR is required for activation of TRIAD Site Server
9	*NRDR Facility ID*	NRDR facility ID is required for activating TRIAD Site Server. If

		the facility is affiliated with multiple child facilities, user will need to have master facility NRDR ID along with child facility NRDR ID(s).
10	*Scanner information*	If a facility has a multiple child facilities, user should have a list of scanners at each of the facilities, device serial number, station name and manufacturer model name for every scanner. If not all fields are available, please have all available fields for each scanner.

1.3 Data Flow

Below is the data flow for the Dose Index Registry in receiving files from facilities and displaying the reports in the National Radiology Data Registry (NRDR). The flow is as follows:

1. Three types of data will be sent from scanners or PACS to the TRIAD Site Server:
    a. Radiation Dose Structured Report (RDSR) received from scanners if scanners support the RDSR format. This is the preferred way of receiving dose information.
    b. Dose sheets / dose summary reports received from either scanners or PACS if RDSR is not available (It's preferred that data should be received from scanners, but they can also be received from PACS if the facility has a high number of scanners)
    c. Localizers received from scanners. (It's preferred that data should be received from scanners, but they can also be received from PACS if the facility has a high number of scanners)
2. Dose sheets / summary reports will be processed in Site Server and the RDSR will be created.
3. Site Server will anonymize the DICOM header of the RDSR's and localizers based on a specified anonymization profile used by all DIR facilities.
4. Site Server will send the data to the TRIAD Central Server at ACR over Secure Sockets Layer (SSL) to ensure its security and reliability.
5. Data received at the TRIAD Central Server will be processed and displayed in NRDR reports available to any registered facility user from the NRDR web site.



2 Sending Files from Scanners / PACS

TRIAD for DIR supports the following scanner manufacturers:

1. Siemens
2. Philips
3. Toshiba
4. GE

Each scanner will need to be configured to send RDSR or dose sheets / summary reports along with localizers. Please contact your field engineer if you need help in configuring your scanner.

TRIAD Site Server supports RDSRs and localizers coming from any other scanner manufacturer.

3 Installation

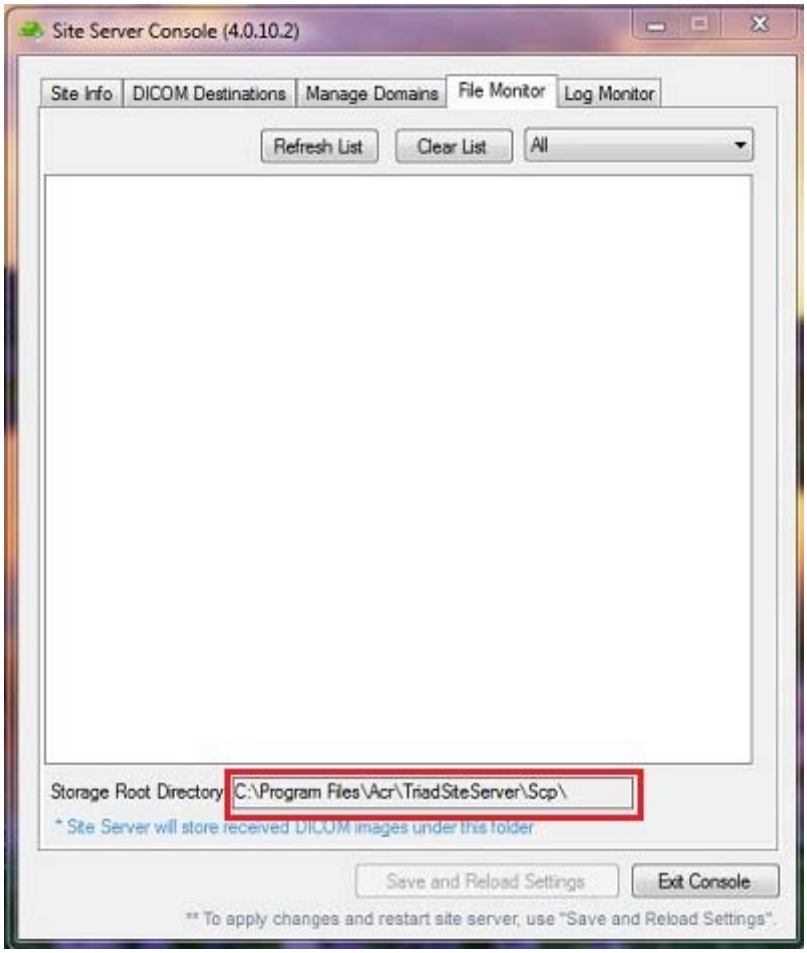
3.1 Getting Ready to Upgrade from TRIAD v4.0 to v4.3

If you want to upgrade from TRIAD v4.0 to TRIAD v4.3, make sure to follow the procedure below:

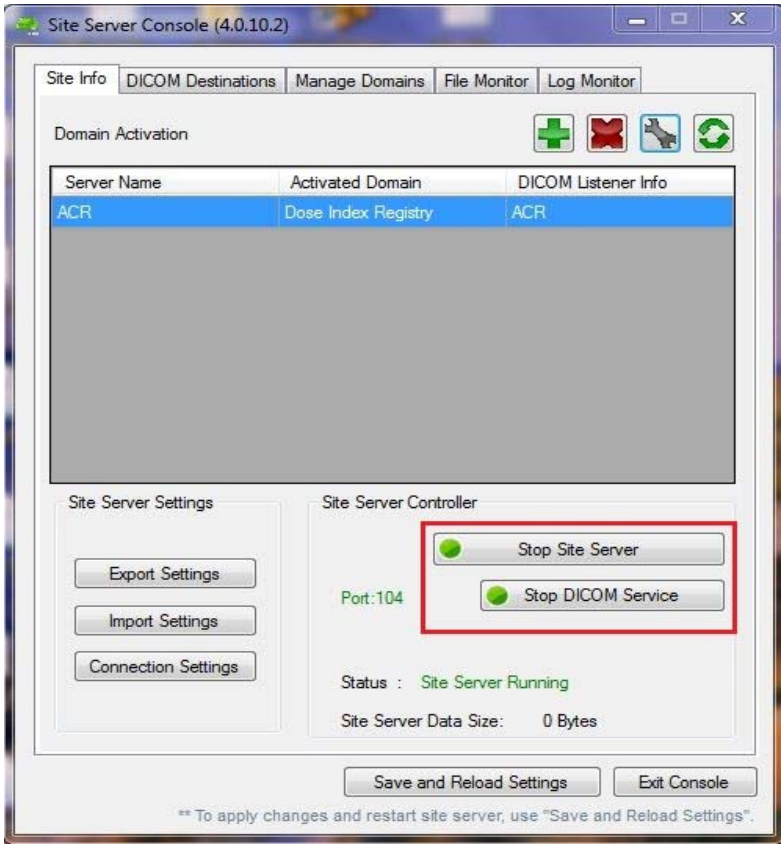
1. Make sure all the data that is in the TRIAD Site Server queue is sent to TRIAD Central Server

- Stop the DICOM service in the Site Info tab to make sure that no data is being received from scanners by the Site Server.
- Go to the File Monitor tab and check if all the files have been sent to the Central Server. The file monitor window should be empty before proceeding with the next step.

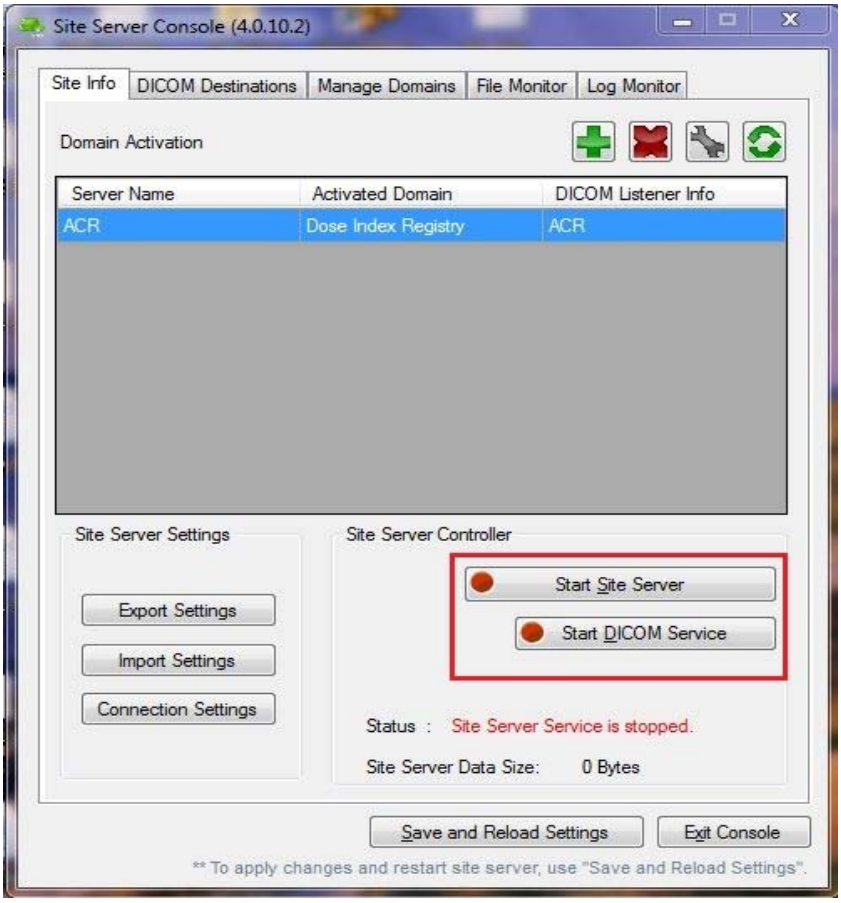
2. Copy the Storage Root Directory Path from the file monitor. Follow this path to delete the ACR folders after uninstallation of TRIAD 4.0. (This will delete the data that is archived in these folders that include the failed files.)



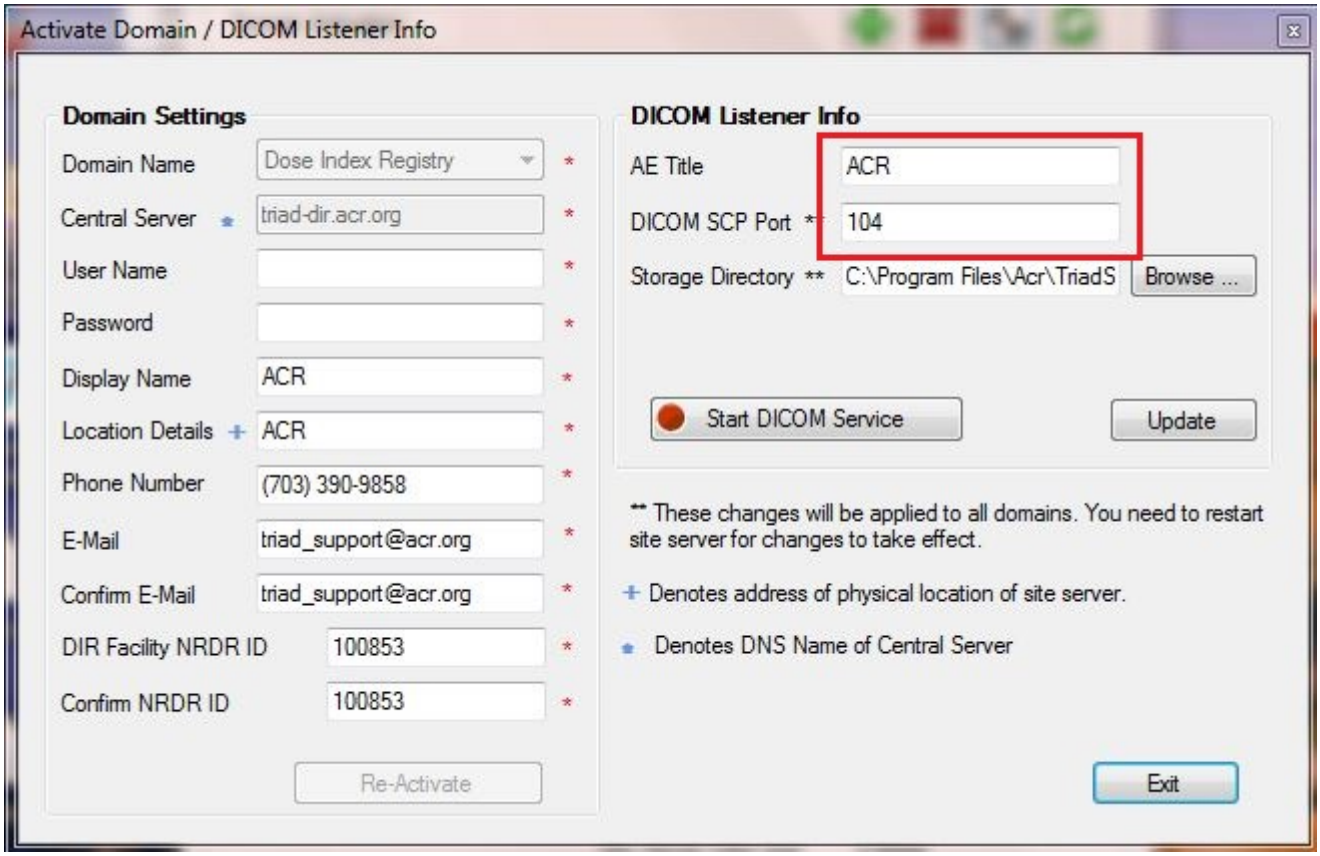
3. Bring up the TRIAD Site Server v4.0 console. Click on “Stop Site Server” button to stop the TRIAD v4.0 service


Site Server Console (4.0.10.2)
Site Info
DICOM Destinations
Manage Domains
File Monitor
Log Monitor
Domain Activation
Server Name
Activated Domain
DICOM Listener Info
ACR
Dose Index Registry
ACR
Site Server Settings
Export Settings
Import Settings
Connection Settings
Site Server Controller
Stop Site Server
Port:104
Stop DICOM Service
Status : Site Server Running
Site Server Data Size: 0 Bytes
Save and Reload Settings
Exit Console
** To apply changes and restart site server, use "Save and Reload Settings".

After the stopping of the Site Server you will see:



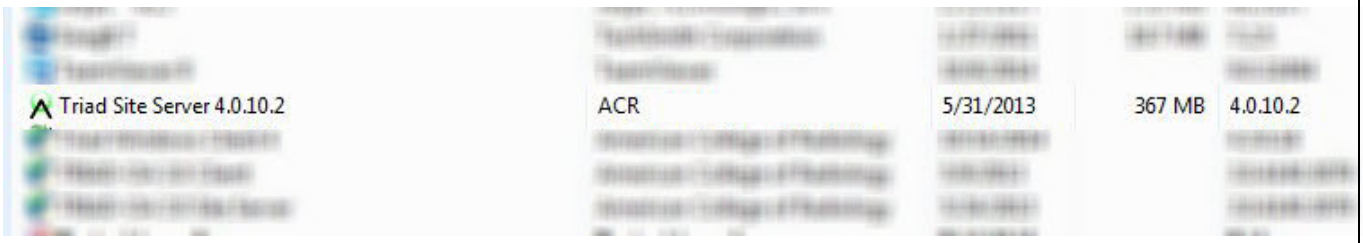
4. If you already configured your scanners or PACS with the DICOM port # and AE title of the TRIAD Site Server and don't want to change the configuration, you should review the current AE title and DICOM port settings on TRIAD Site Server v4.0. Select Site Server the icon. A new window with DICOM Listener info will appear. Copy the AE title and the "DICOM SCP Port" onto a separate piece of paper so you can configure the TRIAD Site Server v4.3 with the same parameters before you stop the TRIAD Site Server v4.0.



3.2 Uninstalling TRIAD v 4.0

To uninstall TRIAD v 4.0 follow the procedure below:

1. Open control panel → Programs → Programs and Features → From list select "TRIAD Site Server 4.0" and click on "Uninstall" link.



2. Delete the ACR folder as mentioned under 3.1 Step 2

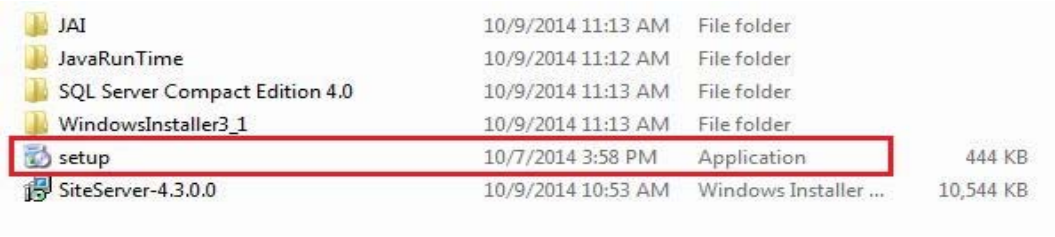
3. After successful installation of TRIAD 4.3, you should activate the domain following step 4 for Activation and Configuration of Domain.

3.3 Installation Steps

1. Please verify you have .Net Framework 4.0 full version installed on the Windows Control Panel.

2. Download the Site Server installation zip file from the specified URL (https://triad4.acr.org/dirsiteserver) to a local folder and unzip the file.

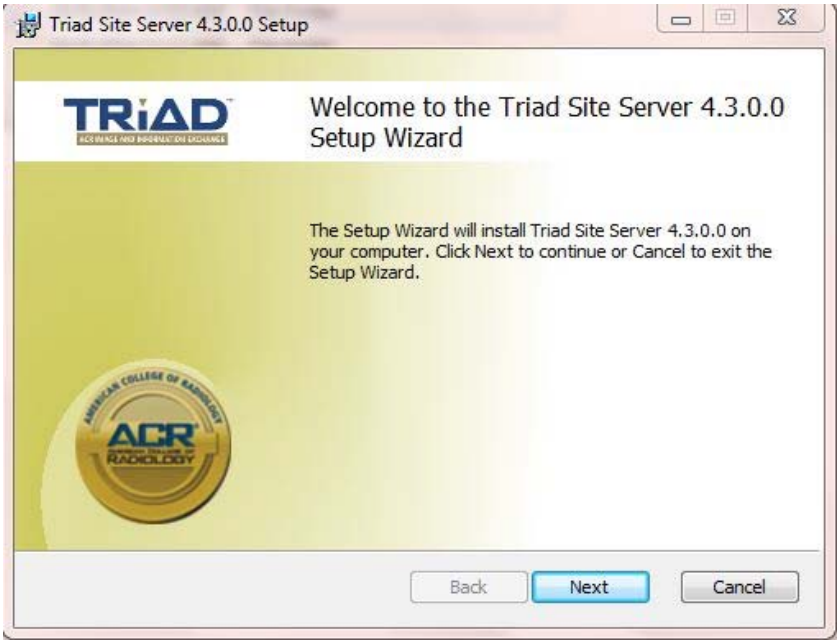
3. Start the installation by double clicking on the **setup.exe** file.


JAI 10/9/2014 11:13 AM File folder
JavaRunTime 10/9/2014 11:12 AM File folder
SQL Server Compact Edition 4.0 10/9/2014 11:13 AM File folder
WindowsInstaller3_1 10/9/2014 11:13 AM File folder
setup 10/7/2014 3:58 PM Application 444 KB
SiteServer-4.3.0.0 10/9/2014 10:53 AM Windows Installer ... 10,544 KB

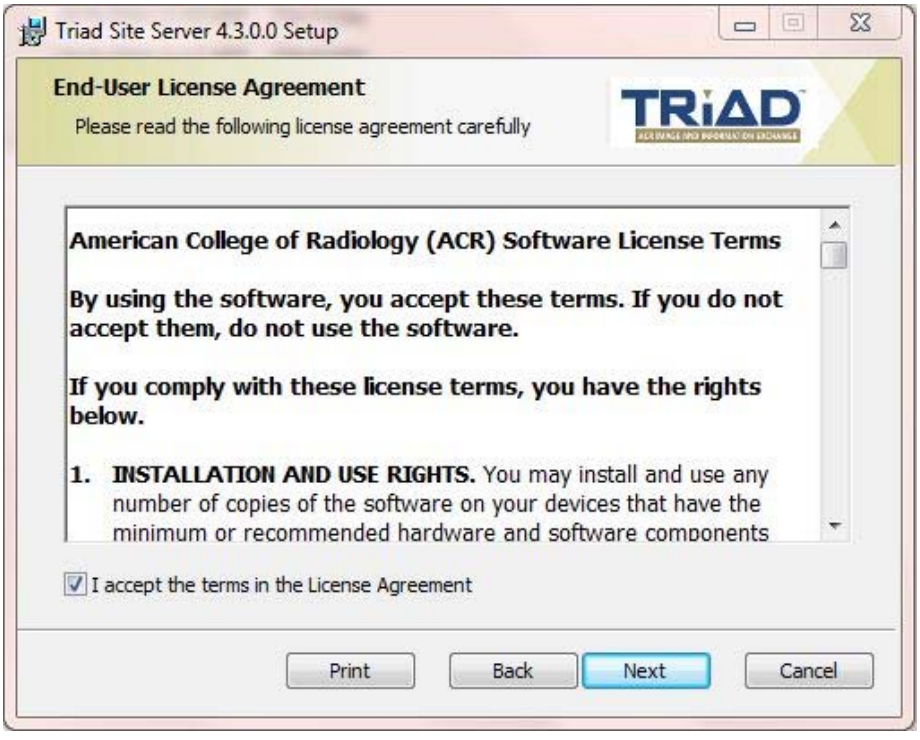
4. Clicking setup.exe will initially invoke installation of Java runtime engine 6.0 and Java Advanced Imaging I/O Tools for JRE 1.1 if they are not already installed on the computer. Please accept and allow the default installation of both components.

5. The publisher should be “American College of Radiology”. Click “Run” to start installation.

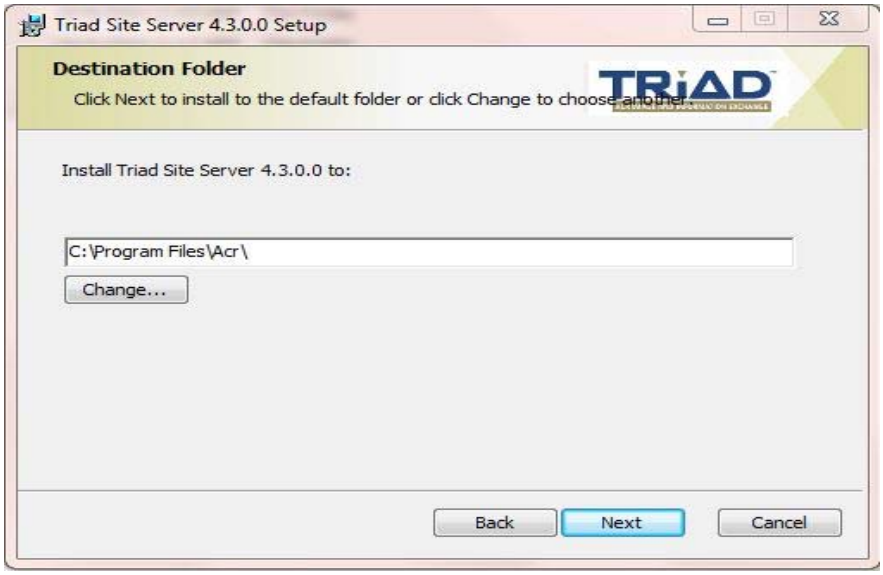
6. Click the “Next” button in each screen to continue the installation steps.


Triad Site Server 4.3.0.0 Setup
TRIAD
Welcome to the Triad Site Server 4.3.0.0 Setup Wizard
The Setup Wizard will install Triad Site Server 4.3.0.0 on your computer. Click Next to continue or Cancel to exit the Setup Wizard.
ACR
Back
Next
Cancel

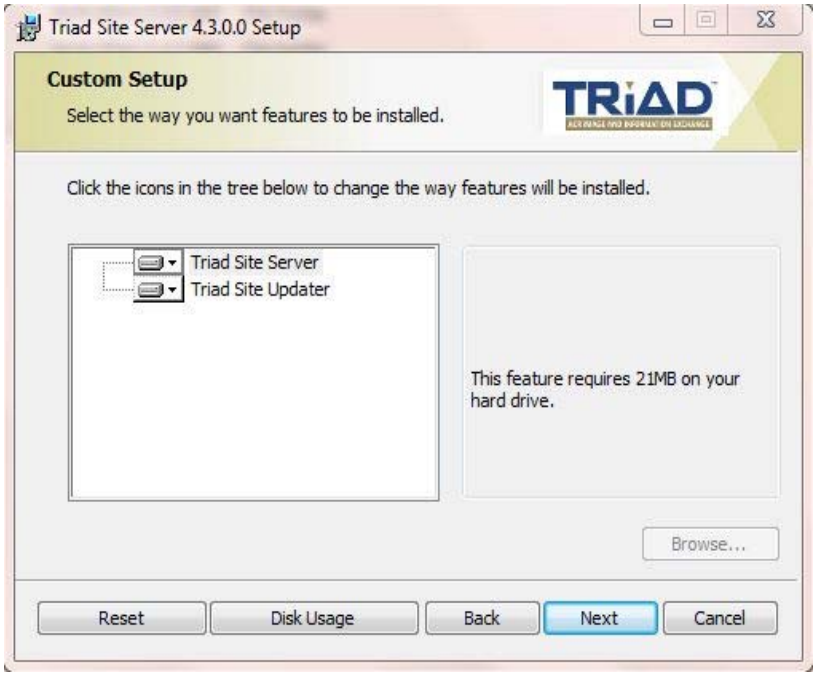
7. Accept the license agreement and click “Next”


Triad Site Server 4.3.0.0 Setup
End-User License Agreement
Please read the following license agreement carefully
TRIAD
American College of Radiology (ACR) Software License Terms
By using the software, you accept these terms. If you do not accept them, do not use the software.
If you comply with these license terms, you have the rights below.
1. INSTALLATION AND USE RIGHTS. You may install and use any number of copies of the software on your devices that have the minimum or recommended hardware and software components
I accept the terms in the License Agreement
Print
Back
Next
Cancel

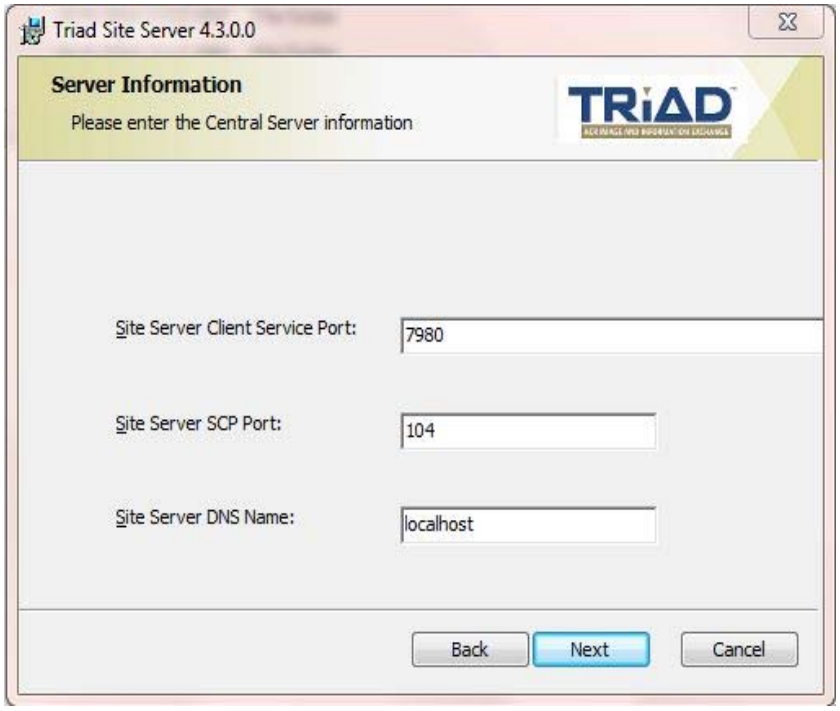
8. Change the Site Server application folder if needed. Then click “Next”.



9. Click “Next”.



10. Specify the DICOM port # and leave Site Server DNS Name as the default value and then click “Next”. If you are upgrading from TRIAD v4.0 to v4.3, please make sure that the port numbers are the same both on v4.0 and v4.3.

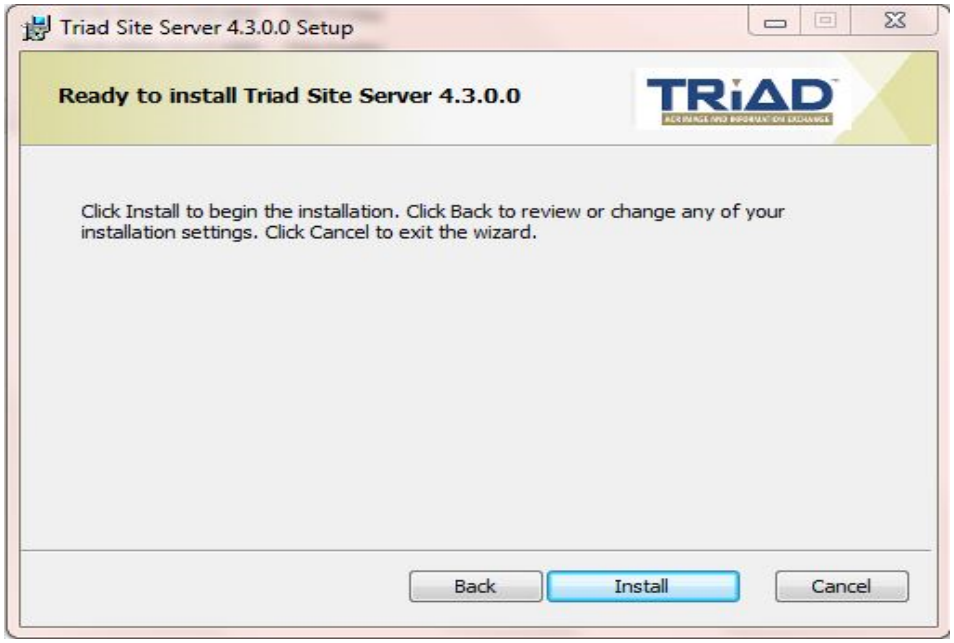


i) **Site Server Client Service Port**: This client service port is not used for the Dose Index Registry domain. Please leave it as default.

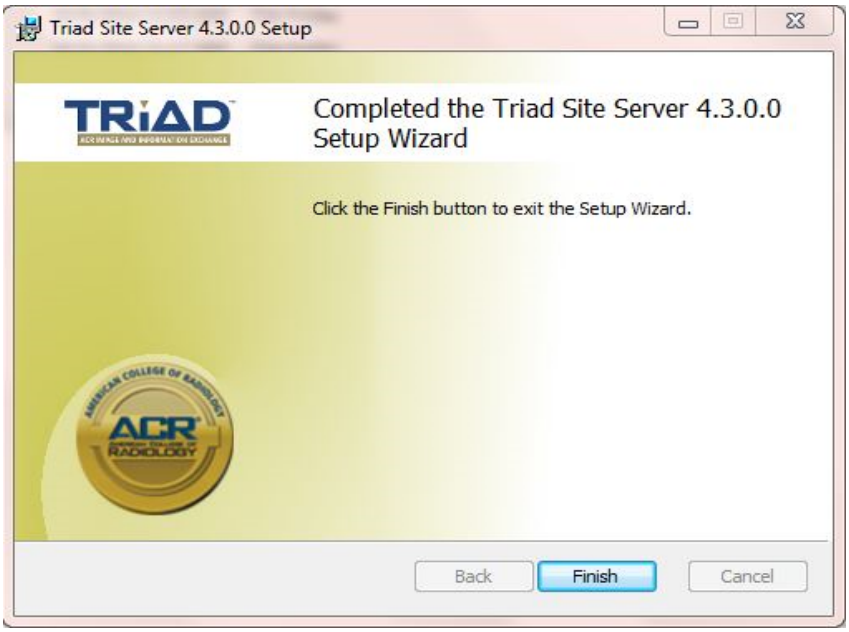
ii) **Site Server SCP Port**: This is the port where the Site Server receives data from external devices such as scanners or PACS – This port can be any free port with a value ranging from 100 to 10000. Please do not use 6567, 6568, or 7979. You can use the command "**netstat –a"** to list all ports used in the system. The default port # is: 104.

iii) **Site Server DNS Name**: Leave this as default value.

11. Click 'Install' to install the application.


Triad Site Server 4.3.0.0 Setup
Ready to install Triad Site Server 4.3.0.0
TRIAD
Click Install to begin the installation. Click Back to review or change any of your installation settings. Click Cancel to exit the wizard.
Back
Install
Cancel

12. When the installation has been completed, you should see the following screen. Click “Finish”.



After successful installation, find the Site Server Console from Windows Start Menu –All Programs->American College of Radiology-> Site Server Console 4.3. You will need to configure the Site Server by using the Site Server Console before you can start using the Site Server service.

4 Activation and Configuration of Site Server

4.1 Pre-conditions for configuring the TRIAD Site Server:

Verify the items below before configuring Site Server

- Site Server runs as a Windows service. Make sure Site Serve Service (Triad Site Server Service) is up and running from the Windows Control Panel.
- Ensure that you have proper user accounts that are created in the National Radiology Data Registry (NRDR)
- You will need to run Site Server Console as administrator. Make sure you have administrator access to the computer that runs Site Server.

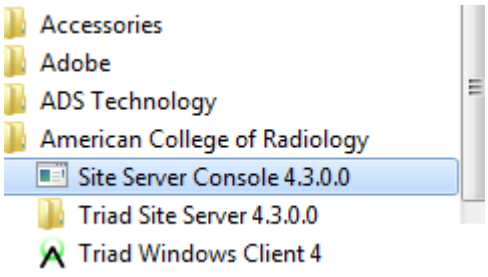
4.2 Site Server Console Configuration

Following are the steps for configuring Site Server:

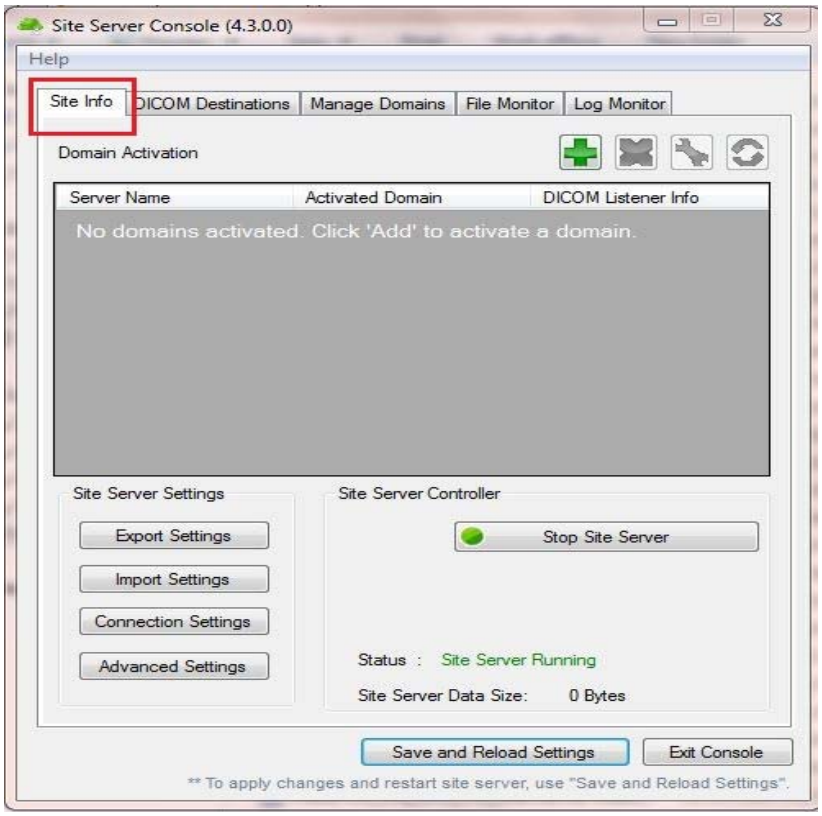
1. Domain activation
2. Configuring and mapping child facilities for Master Facility
3. Configuration of AE title, port # and image storage folder
4. Setup the schedule for image forwarding

4.2.1 Domain Activation

Invoke the Site Server Console (Use Run as Administrator option) from Windows Start Menu – All Programs->American College of Radiology-> Site Server Console 4.3.

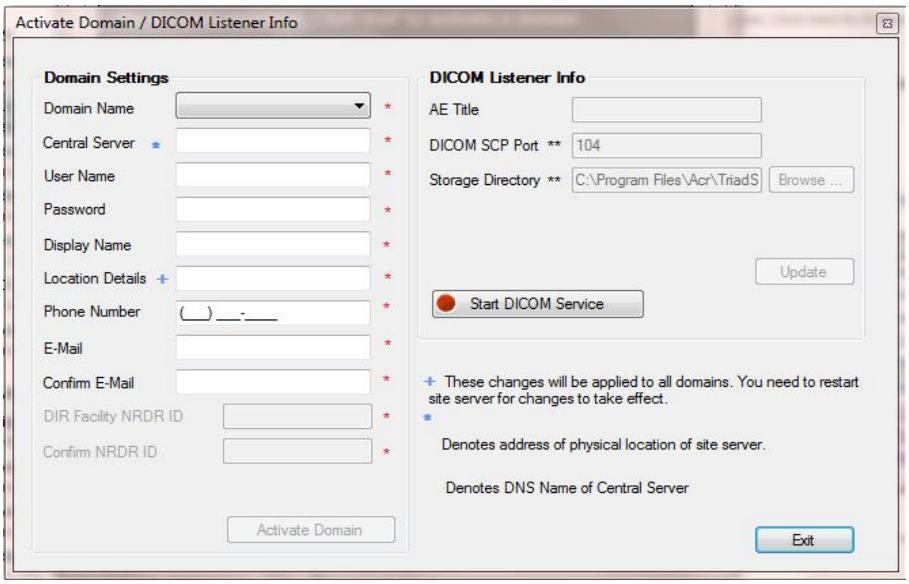


Domain is activated from the main TRIAD Site Server Console window. You can also access the domain activation screen, by clicking on the “Site Info” tab.



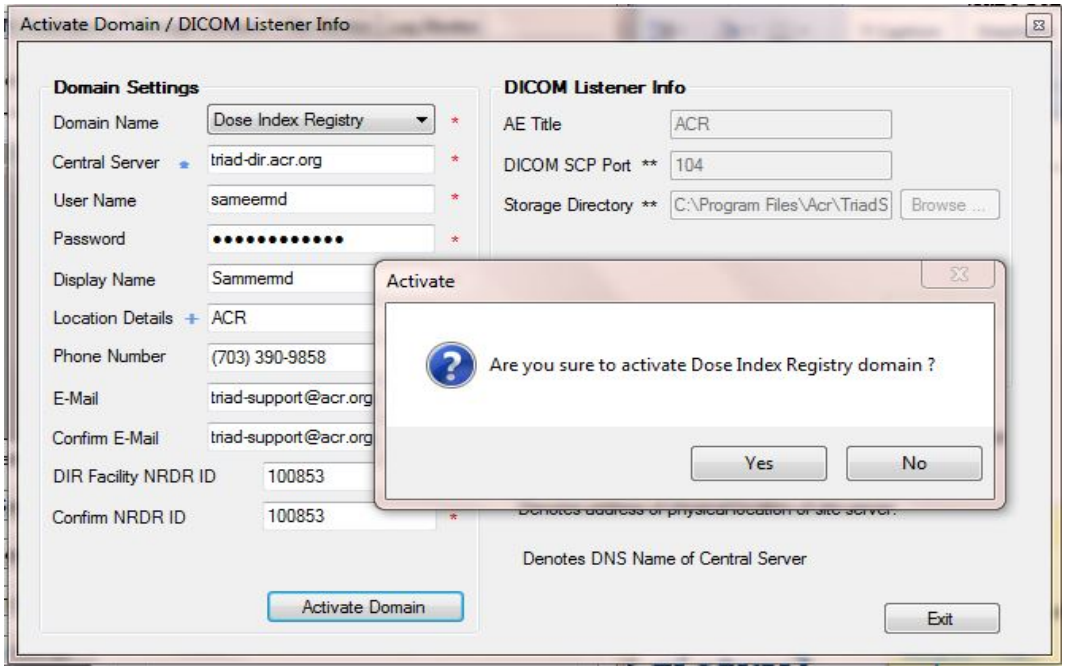
To activate the Site Server for a domain (e.g. Dose Index Registry) do the following steps.

1. Click the Add button . The following screen will be displayed.

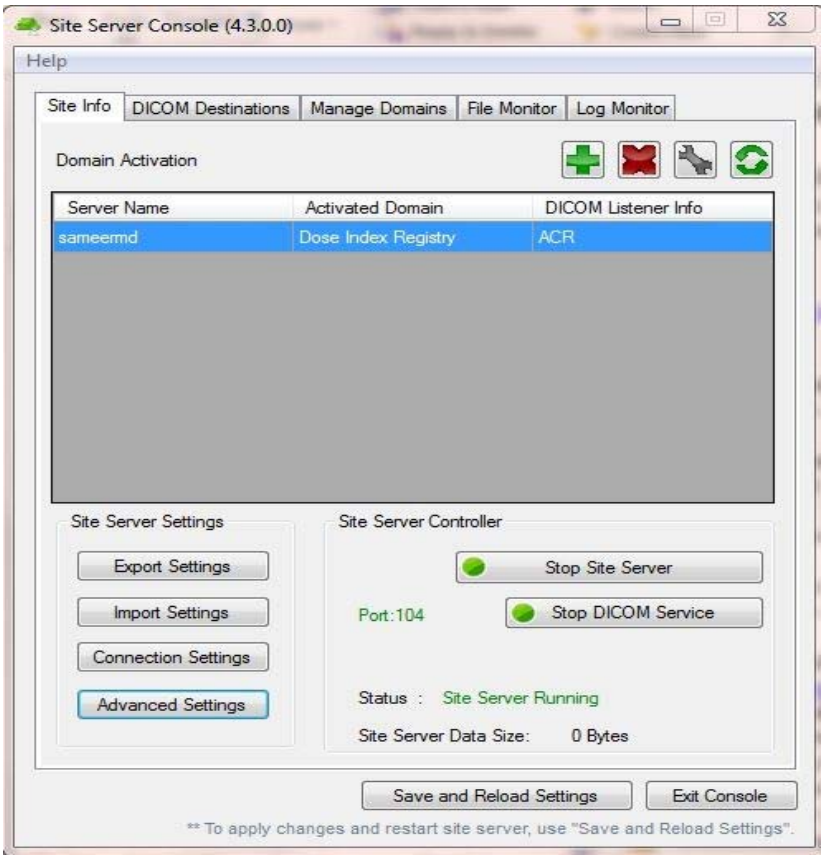


2. In the pop-up screen, add the following details.

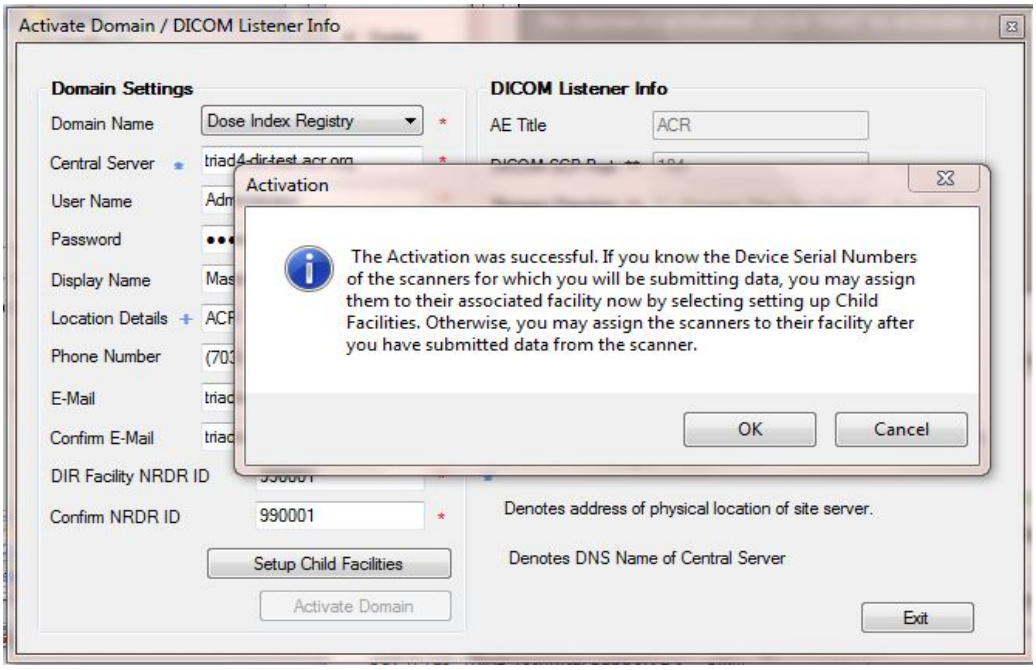
   Domain Name: Select "Dose Index Registry" from the drop down list.
   Central Server: Please use **"triad-dir.acr.org".**
   Note: please don't append 'http://' to the Central Server name.
   User name: *<User Name in NRDR >* Provide the NRDR username.
   Password: *<Password in NRDR >* Provide the NRDR password.
   Display Name: *<Name used to identify your site server>:* Please user your NRDR facility ID. If your facility has multiple installations of SS, please use format as 100001-1, 100001-2 etc. (if your facility ID is 100001)
   Location details: *< address/ identification details of the physical location>*
   Phone number: *<Number we can use to contact regarding the SS> e.g.: 120-453-8984*
   Email: *<Email address of the user to be notified when the Site Server is down.>*
   DIR Facility NRDR ID: *<Facility ID specified in NRDR.>* Dose Index Registry domain activation requires the NRDR facility ID. If you are using this instance of TRIAD to send data for multiple facilities, then please enter your Master Facility ID. If facility ID is not entered, the Dose Index Registry domain cannot be activated.
   Note: If you do not know your NRDR facility ID and/or password, please contact nrdr@acr.org or call 800-227-5463 ext 3535.



3. If all the entries are in the proper format, then click ‘Activate Domain’. If successful, a new entry will be added to the list as shown in the image below. If activation failed, an error message will be shown regarding the status of activation. The most common error message will be related to entering a wrong NRDR user name and password.



4. The pop-up below will appear if the domain activation is performed using a Master Facility ID. Click on “OK” to add child facilities. If you do not configure the child facilities and try sending data, the data sent from the child facilities will be saved in cache only for 14 days and an email will be sent to the site administrator asking them to configure the child facility.


Activate Domain / DICOM Listener Info
Domain Settings
Domain Name
Dose Index Registry
Central Server
User Name
Password
Display Name
Location Details
Phone Number
E-Mail
Confirm E-Mail
DIR Facility NRDR ID
Confirm NRDR ID
990001
Setup Child Facilities
Activate Domain
DICOM Listener Info
AE Title
ACR
Activation
The Activation was successful. If you know the Device Serial Numbers of the scanners for which you will be submitting data, you may assign them to their associated facility now by selecting setting up Child Facilities. Otherwise, you may assign the scanners to their facility after you have submitted data from the scanner.
OK
Cancel
Denotes address of physical location of site server.
Denotes DNS Name of Central Server
Exit

The email below is sent to the e-mail address configured in the Site Server console if a scanner is not mapped and the data is still being sent from that scanner to Site Server. This e-mail is sent for the first time when data is received from a scanner. The user has 14 days to configure the scanner mapping on the TRIAD Site Server console. After 14 days, files are deleted from the TRIAD Site Server.

An easier way to get the scanner details is to send one exam from each scanner to TRIAD Site Server. This will generate emails that will contain all the information that we have on a scanner. You can then use our emails to get the Station Name, Device Serial Number, Institution name and Manufacturer Model to map the scanners in TRIAD interface and configure each scanner to be associated with the right child facility.

Dear <First Name Last Name>,
Site Server has detected the following unmapped submission:

- *Station Name: <DICOM TAG VALUE>*
- *Device Serial Number : <DICOM TAG VALUE>*
- *Institution Name: <DICOM TAG VALUE>*
- *Manufacturer Model: <DICOM TAG VALUE>*

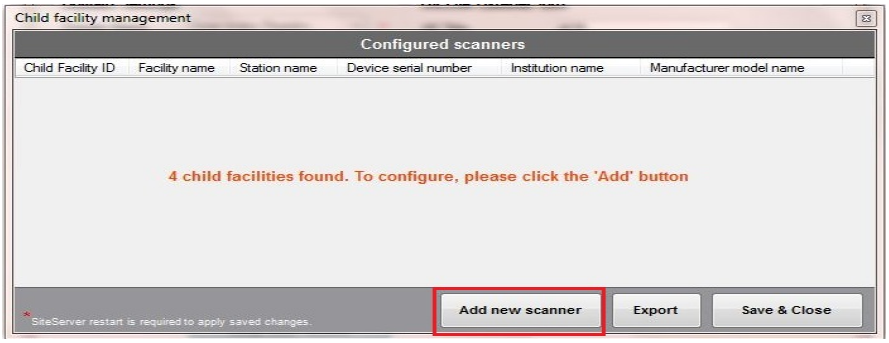
You have the following unmapped submissions now:

#	*Station Name*	*Device Serial Number*	*Institution Name*	*Manufacturer Model*
1	*A*	*S*	*S*	*S*

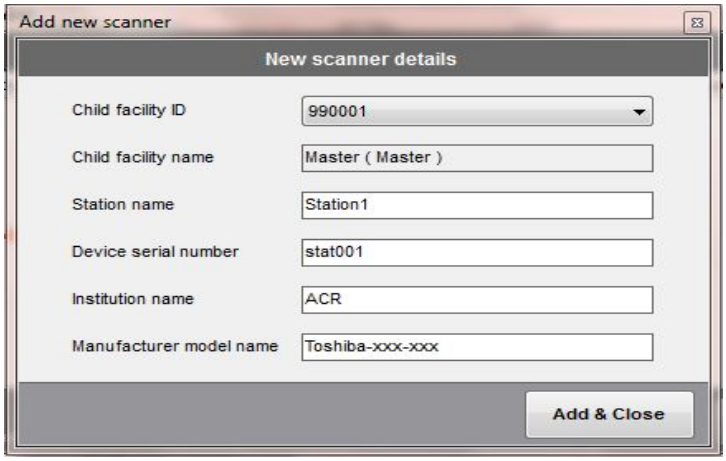
2	*A*	*D*	*F*	*F*

There is no association between this device and a NRDR Facility ID. All submissions from this device will be cached locally on the Site Server and sent to Central Server after the corresponding association has been set up. Please use Site Server Domain Settings/Setup Child Facilities to map this scanner.
Unrecognized data will be automatically removed from the Site Server in 14 days if they are not mapped in Setup Child Facilities settings.
Best Regards,
TRIAD Administrator

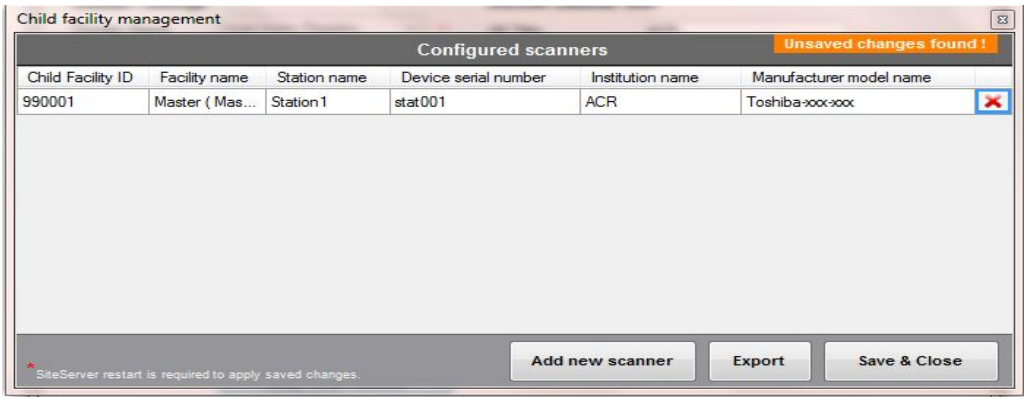
5. Click on the "Add new scanner" button to add a child facility. A new pop up window will appear. Select the "Child facility ID" and fill in the following fields.



6. Click on "Add & Close" to save the child facility details.

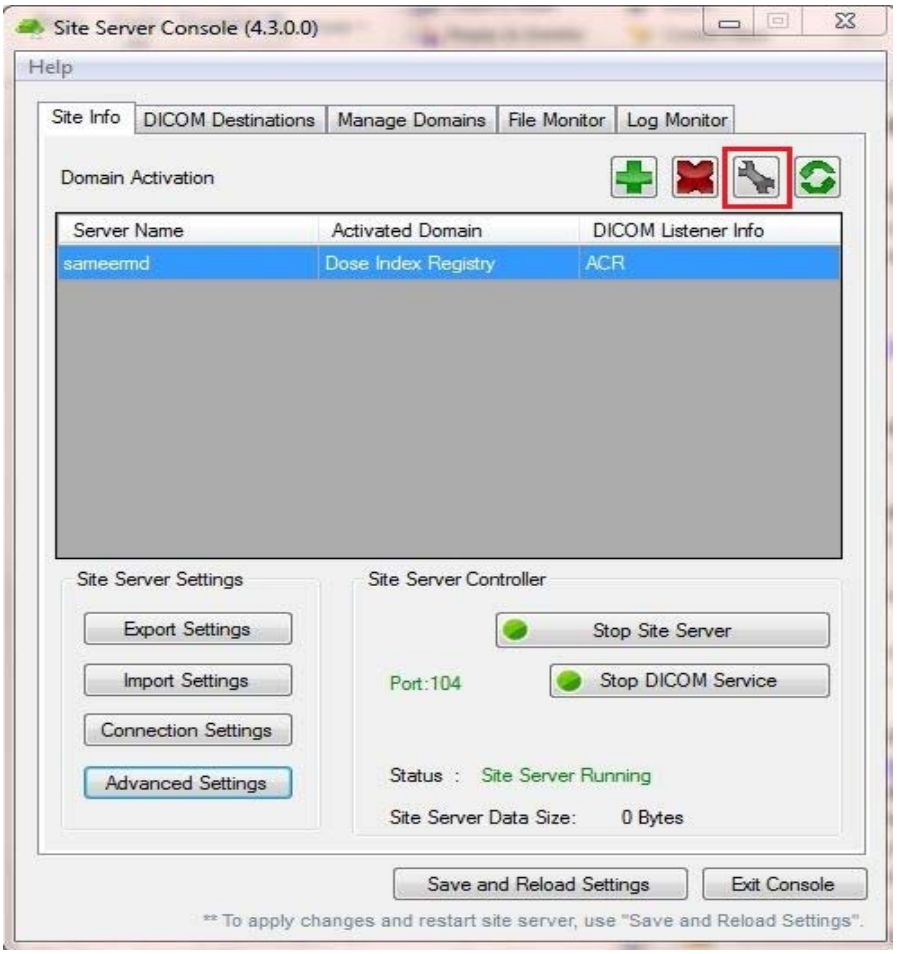


7. To add more scanners click on “Add new scanner” and a new pop-up will appear asking for scanner details. Select the Child facility ID from the pull down and then enter the scanner details.

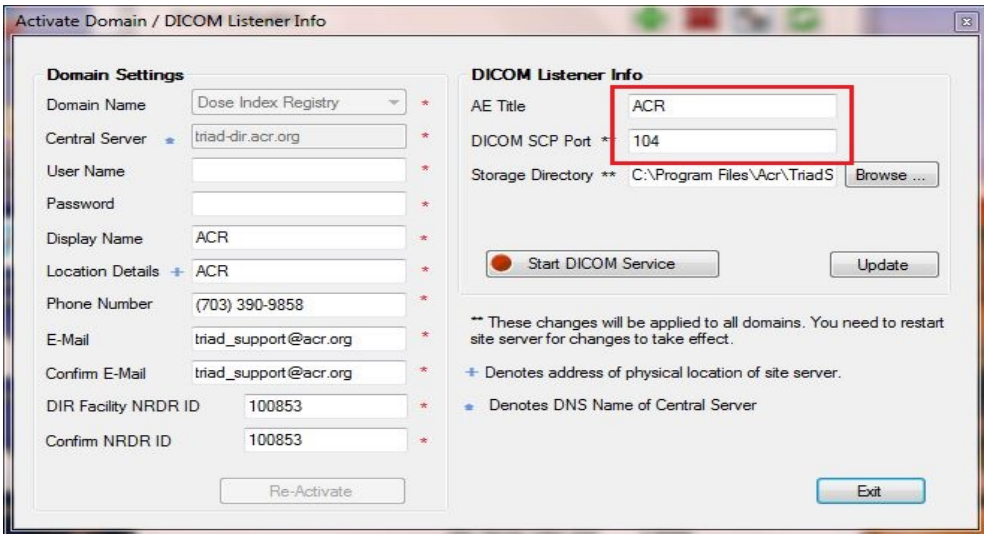


4.2.2 Configuration of port #, AE title and image storage folder

1. The default port # is 104 and the default AE title for the TRIAD DIR domain is “ACR”. To change the port #, AE title and/or image storage folder, invoke the Site Server console and select the “Site Info” tab. If you are upgrading from TRIAD v4.0. to v4.3, please make sure that the AE title and port # are the same as the ones configured for Site Server v4.0. For storage directory, please select an empty folder instead of the original TRIAD v4.0 storage folder.
2. Select the Dose Index Registry domain row. Then click the button.



3. In the pop-up screen you can update the details and then click “Update” button.



4. Click “Exit” to return to the main screen.

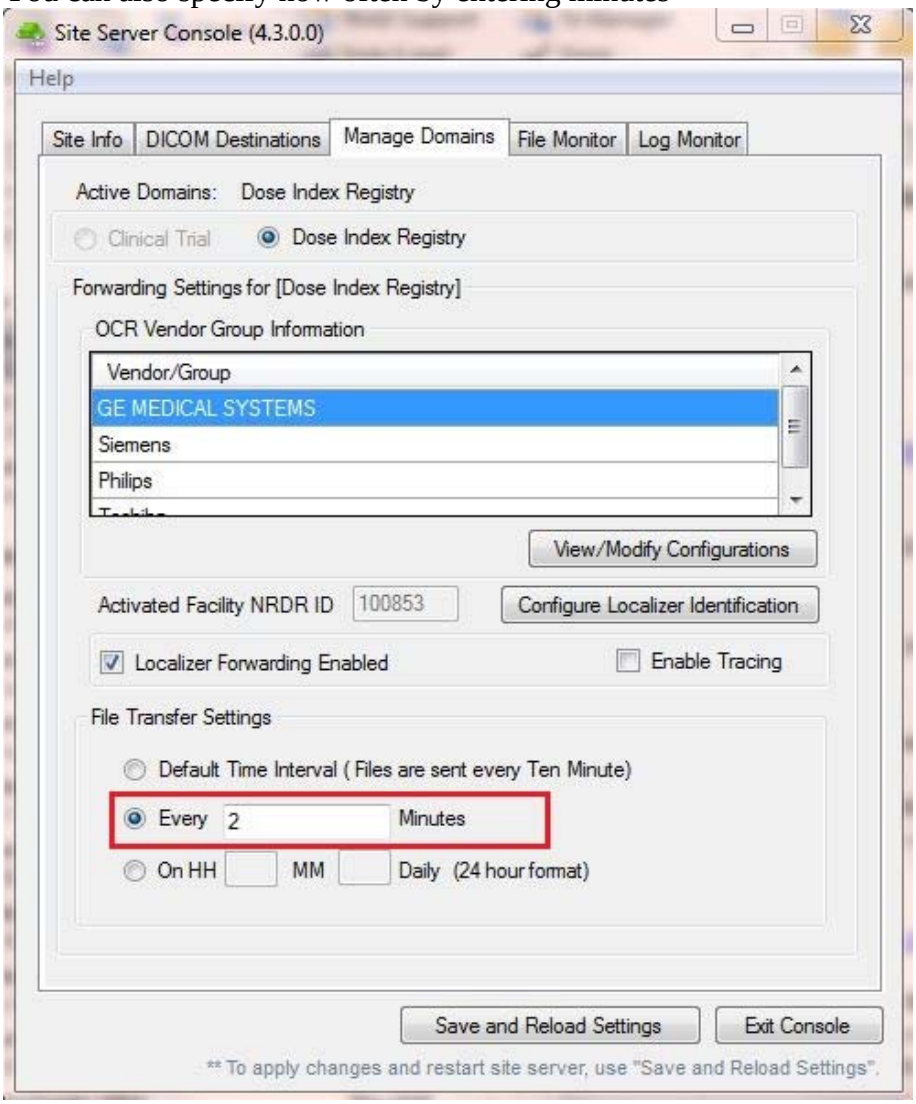
4.2.3 Setup Schedule for Image Forwarding

You can set the image forwarding interval using Site Server Console. From “Manage Domains” tab, select the “Enable Scheduling” check box. Three scheduling options are available as shown in the figure below.

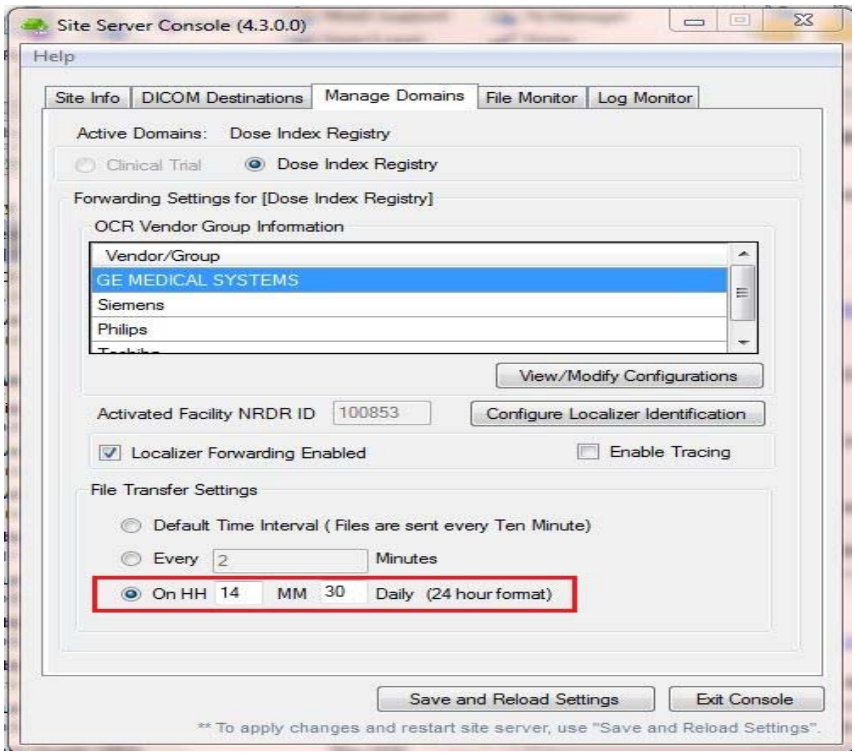
1. Click the Dose Index Registry from the “Active Domains” list.
2. Under File Transfer settings:

   a. Selecting the default time interval which allows Site Server to forward processed files automatically every ten minutes. This is the preferred method for the Dose Index Registry domain.

   b. You can also specify how often by entering minutes



c. You can enter hour (HH) and minute (MM), if you would like the files to be sent every day in batch mode.



Please make sure to leave the other settings, such as “Localizer Forwarding” at their default values. If any changes are needed for configuration of those settings, please contact ACR using the contact information provided below.

Click the “Save and Reload Settings” button to enable the schedule settings.

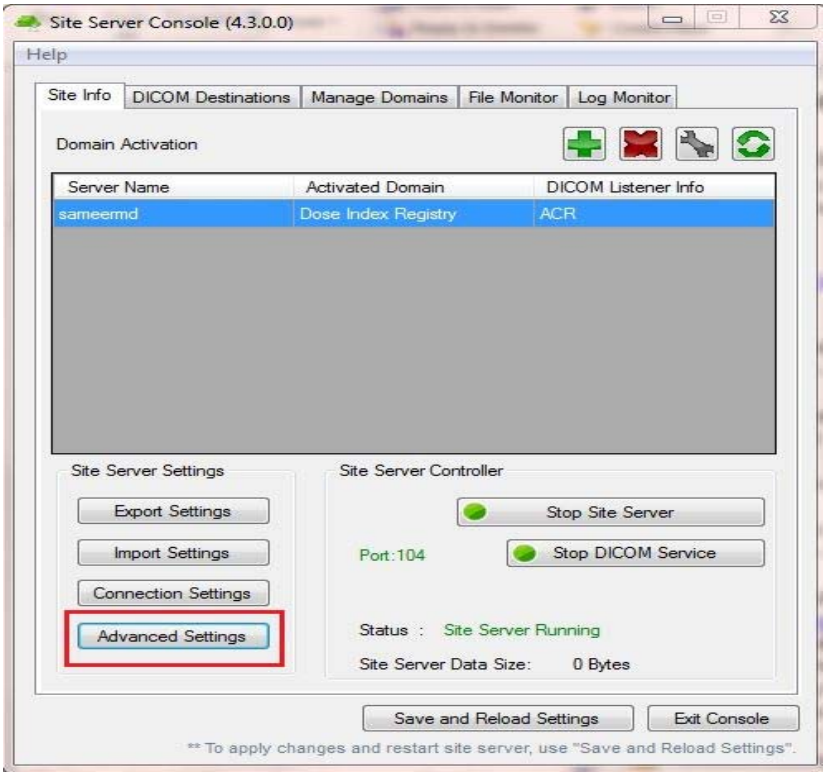
The images stored locally in Site Server will be forward to Central Server as per the scheduled time.

Site Server should now be up and running and ready to receive files from your scanner(s) or PACS.

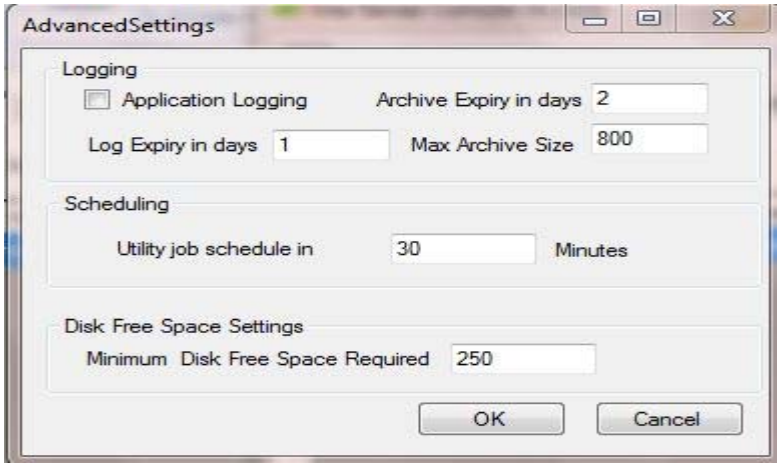
If you are upgrading from TRIAD v4.0 to v4.3, please follow the instructions in section 3.1 on how to un-install TRIAD v4.0

4.2.4 Advance Setting:

This feature allows the user to manage the archive folder size and expiry date.



Archive Expiry is the duration of storing the log files in the archive in days. Maximum archive size is the log file storage size in MBs



5 Un-installation

You can uninstall TRIAD Site Server by using Windows Control Panel (Programs and Features). Site Server settings will be removed during the un-installation.

6 Additional Information

For any additional information, please check the TRIAD web site at: http://triadhelp.acr.org

Please contact ACR TRIAD support desk if you have questions with the installation and configuration of the TRIAD Site Server. Support contact information and hours are:

E-mail address: Triad-support@acr.org
Phone: 703-390-9858
Support Hours: Monday – Friday 8am – 5pm ET except ACR observed holidays